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THE SPRING TOUR ALONG LAKE MICHIGAN

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The annual spring tour of the Arboretum School took place between May 27 and June 6 and provided its participants an opportunity to visit botanical gardens, arboreta and areas of natural vegetation along the western side of Lake Michigan in Illinois and Wisconsin.

Our party left Philadelphia on Monday, May 27, and flew to Chicago, where we had reservations at a hotel in the Oakbrook area, west of the city. The following day was devoted to visiting the Morton Arboretum at Lisle, Illinois.

The Morton Arboretum was established in 1922 by Joy Morton, founder of the Morton Salt Company, and son of J. Sterling Morton who originated Arbor Day. Its 1800 acres include several special collections, among which may be mentioned, (1) botanical groups, such as maples, conifers, etc., (2) landscape groups, for example, hedges and ground-covers, (3) geographic groups, in which trees and shrubs are arranged according to the continents and countries of their origin, and (4) association groups, chief among which is a reconstituted prairie, of which more will



Fig. 2. A portion of the hedge collection at the Morton Arboretum



Fig. 1. A view in the prairie at the Morton Arboretum

be said later. In addition, there are hundreds of acres of woodlands and wetlands which afford the visitor an opportunity to study and enjoy the native flora and fauna.

Upon our arrival at the arboretum we were welcomed by Dr. Marion T. Hall, the director, who then turned us over to Dr. Floyd A. Swink the arboretum's taxonomist. My wife and I had met Floyd on a previous visit and were delighted that he was to be our guide for the day. We were especially pleased that the first area to which he led us was the arboretum's reconstituted prairie.

Although Illinois is known as The Prairie State there is lamentably little original prairie to be found within its boundaries. This is due largely to industrial and residential encroachment and also because prairie land makes such good cornfields. It is therefore greatly to the credit of the Morton Arboretum that it has set aside an area of about eight acres (later to be quadrupled) and has brought in the seeds of several hundred species of plants known to have been the primary components of this fascinating community. (Fig. 1).



Fig. 3. A section of the rock garden at the Chicago Botanical Garden.

Among the salient features of our mid-western prairies are the tall grasses such as blue-stem (*Andropogon Gerardii*) and the switch— or panic—grasses (*Panicum* spp.). Although these were not much in evidence at the time of our visit, there were many other plants to excite our admiration. The beautiful shooting star (*Dodecatheon Meadia*) was at the height of its bloom, with reflexed pinkish petals and yellow connate stamens. Golden patches of puccoon (*Lithospermum canescens*) stood out boldly, and the wild hyacinth (*Camassia scilloides*) created a misty effect when seen at a distance. All around us were the prairie phlox (*P. pilosa*) and a cream-colored wild indigo (*Baptisia leucophaea*). Also in flower were golden alexanders (*Zizia aptera*) and birdsfoot violet (*Viola pedata*). Later in the season tall composites would dominate the scene, but all we saw of them were the early leaves of three or four species of *Silphium* and the basal foliage of a golden-rod (*Solidago rigida*) and a blazing star (*Liatris pycnostachya*).

Upon our return from the prairie we were taken on an hour-long drive throughout the arboretum, affording us an impressive opportunity to view open country, lakes and ponds, native woodlands with their nature trails and several of the special geographic groupings.

Following lunch in the arboretum's tearoom we gathered in the auditorium and enjoyed a beautifully executed slide program showing the arboretum throughout the year. The balance of the afternoon was devoted to wandering through some of the special collections, such as the hedges (Fig. 2), the conifers, the shrubs and the ground-covers. We also went through the green-houses and spent an all-too-brief half-hour in the superb library. Everyone agreed that our tour had gotten off to a fine start.

The following day we drove eastward to Glencoe to visit the recently established garden of the Chicago Horticultural Society. We were welcomed by the Society's president, Dr. Louis B. Martin, who gave us an interesting account of the history of the garden and its plans for future development. He was followed by the director of the garden, Dr. Francis de Vos, who showed a series of slides depicting the evolution of the garden and its appearance throughout the twelve months of the year.

Following a delicious buffet luncheon, at which we were guests of the Society, we were conducted through the greenhouses and out into a series of demonstration gardens featuring herbs, perennials, ground-covers, rock-garden plants and vegetables. (Fig. 3).

The main garden, which encompasses some 300 acres, was originally marshland and this has been exploited by the creation of a chain of inter-connecting lakes and several islands, on the largest of which the new educational center is under construction. The area is fortunate in having a considerable portion of unspoiled woodland and at one point we descended from our bus to follow a nature trail surrounded by trilliums, anemones and a multitude of other spring flowers.

Several of us had visited this garden in 1971, before it was open to the public, and were astounded at the tremendous progress which had been made in less than four years. Tens of thousands of cubic yards of earth had been moved, thousands of trees and shrubs had been planted and miles of roadway paved. Truly, this is destined to become one of the great botanical gardens of this country.

Later that day we drove into the city and spent a rewarding hour or so in Chicago's magnificent Art Institute.

Departing from Oakbrook on Thursday, May 30, we drove north to Kenosha which lies in the southeastern corner of Wisconsin. A few miles south of the city is the Chiwaukee Prairie, where we were warmly received by Mr. Alfred P. Krampert and Dr. Eugene Gasiorkiewicz. Mr. Krampert was one of the leaders in founding the Chiwaukee Prairie Preservation group in 1965 and it is due largely to his efforts and those of a few devoted friends that this virgin tract has been saved from plow and bulldozer. Dr. Gasiorkiewicz is a member of the faculty of the nearby Parkside campus of the University of Wisconsin. We were indeed fortunate to have two such experienced guides.

The Chiwaukee Prairie today comprises more than 80 acres of what was at one time the bed of a glacial lake (Lake Chicago), and the ridges which border it formed the boundaries of that late Pleistocene body of melting ice. Indeed, one of the factors responsible for its continuing existence has been that its prevailing wet soils may have discouraged its conversion into cornfields. (Fig. 4).



Fig. 4. Members of the tour in the Chiwaukee Prairie. Photo by Bea Henderson



Fig. 5. *Dodecatheon Meadia* in the Chiwaukee Prairie

As we were led into the main prairie area the first sight that met our eyes was the vast expanse solidly occupied by shooting-star, the same species of *Dodecatheon* we had seen at the Morton Arboretum, but here in such abundance that we trod through acres of it without in the least diminishing the population. Occasionally there was an albino or white-flowered individual (forma *album*), but the general impression was that of a solid field of luscious pink. (Fig. 5).

As we moved westward across the prairie we noted that the shooting-star was gradually replaced by the puccoon, again the same species of *Lithospermum* we had seen at the Morton, but here far more abundant, as befits an original prairie habitat. In one spot we saw a lighter yellow-flowered species with a fimbriate corolla which Dr. Gasiorkiewicz identified as *L. incisum*.

In somewhat drier areas there were almost solid carpets of yellow stargrass (*Hypoxis hirsuta*) and blue lupine (*L. perennis*), but in the moist hollows the cottongrass (*Eriophorum angustifolium*) formed patches of snowy white, supplemented by a delicate blue-eyed-grass (*Sisyrinchium campestre*). To those of us who think of Indian paintbrush (*Castilleja coccinea*) as something rather rare and special, it was a revelation here to see scarlet carpets of it spread out before us.

Following lunch at a nearby restaurant, we drove a few miles farther north until we came to Hawthorn Hollow. This 40-acre nature sanctuary is the property of the Misses Margaret and Ruth Teuscher who purchased it in 1935. It consists for the most part of deciduous woodland leading down to a stream and a small swamp. It is said that more kinds of birds may be seen here than at any other locality in this part of the state. In one area there is a small piece of undisturbed prairie supporting some of the same plants we had seen earlier in the day. We were fortunate in having Miss Ruth Teuscher and her sister lead our group along the winding trails and call attention to plants of particular interest (Fig. 6).

The name "Hawthorn" is eminently appropriate here, since the genus *Crataegus* was represented by a seemingly limitless array of species and varieties. A plant which delighted us greatly was the green dragon or dragon-root (*Arisaema Dracontium*), a species seldom seen today in the Philadelphia area. Unlike most other members of the genus, the leaves of this one are pedately divided rather than trifoliate. Another novelty for most of us was the prairie-smoke (*Geum triflorum*), a low, soft-hairy perennial with pendulous purple flowers borne in three's.

In the twelve open acres between the house and the highway the Teuschers have developed an arboretum. In this they have been ably assisted by Mr. Clarence Godschalk, Director Emeritus of the Morton Arboretum and an eminent landscape architect. Starting first with sugar maples and crab apples from their own woods, they have added many fine native and exotic trees and shrubs. Hawthorn Hollow is not only a naturalistic gem, but a tribute to two small ladies endowed with imagination and tireless energy. That evening found us comfortably quartered in our hotel in Milwaukee.

Friday, May 31, was dedicated to a visit to the Alfred L. Boerner Botanical Gardens at Hales Corners in Whitnall Park, a few miles southwest of the city. My old friend John E. Voight, the director, received us and led us into the sumptuous library where he gave us a brief account of the genesis of these gardens, which owe their existence to two distinguished benefactors, Charles B. Whitnall and Alfred L. Boerner.



Fig. 6. Miss Ruth Teuscher (center) with members of the tour in Hawthorn Hollow. Photo by Norbert Bybee of the Kenosha News.



Fig. 7. The Administration Building at the Alfred L. Boerner Botanical Garden

Our tour of the grounds took us first through a colorful and diversified display of perennials in close proximity to the Administrative Building (Fig. 7). We were over-awed by the magnitude of the rose garden which contains some 5000 plants, unfortunately not yet in bloom on this date.

There is an extensive herb garden in the center of which is a "salad bowl", demonstrating that such culinary plants as kale and chard are not without their aesthetic appeal.

The justly popular dwarf or slow-growing conifers are here represented by an infinite variety of forms effectively planted in a series of small beds along a winding path.

One of the most unusual features of this garden is a rustic walkway which traverses a low swampy area from which one may look down upon a natural area of alder, skunk-cabbage, marsh-marigold and many other moisture-tolerant plants. John told us that this elevated boardwalk was made possible by the devotion of a secretary who loved this garden, and bequeathed a legacy of \$6000 to be used in any way the director desired. Thus we were able to penetrate into the heart of this area of haunting beauty, replete with water-fall, and we concurred with our guide that nature is the best landscape architect.

Near the southernmost edge of the gardens is a depressed area of limestone outcroppings where are to be seen many native wildflowers (Fig. 8). Returning to our starting point we traversed a series of beds where day lilies, (*Hemerocallis*), *Iris* (450 species and varieties), and *Eremurus*, (three species) created a wild riot of color.

From every vantage point the vast acres of these gardens terminate in woodlands where, we were told, nature trails add to the educational dimension of the institution.

In the afternoon we walked along one of the many nature trails, and inspected a small portion of the garden's celebrated collection of lilacs, the hedge demonstration area, a trial garden and an exhibit of various mulching media. All of us, I think, departed from the Boerner Gardens with a realization that it is not only aesthetically and botanically satisfying, but that it possesses a remarkable educational potential.

On Saturday, June 1, we drove through some 80 miles of undulating farm and grazing land to Madison to visit the

University of Wisconsin Arboretum. This fine facility of more than 1300 acres includes examples of the major botanical habitats of the midwest—prairies, marshes, woodlands, ponds and lakes—and constitutes an important adjunct to the study of plant sciences at the university.

It was on this drive that we first became aware of the prevalence here of the nannyberry or sheepberry (*Viburnum Lentago*). Although this species is native to Pennsylvania, it is of infrequent occurrence in the southeastern counties. We were therefore pleased to observe it in full flower not only here but elsewhere throughout Wisconsin.

Since Dr. Katharine T. Bradley, the director, was unable to be present she had kindly arranged for Dr. Edward R. Hasselkus, professor of horticulture, and Dr. James H. Zimmerman, naturalist, to receive us and show us around.

Dr. Hasselkus led us first through the shrub garden, a collection of 250 different kinds of flowering shrubs hardy in south-central Wisconsin. Instead of being laid out in rows, the plants were attractively grouped in small beds of irregular shapes which displayed them to great advantage. One of the most spectacular was a specimen of *Lonicera tatarica* 'Arnold Red' in full bloom.

We next wandered through a large area devoted to the growing of trees, both native and exotic. Here again the arrangement was delightfully informal and each specimen was allotted adequate space for its maximum development—a provision all too seldom taken into account where trees are planted. An interesting specimen here was a variegated form of *Acer platanoides* which, while frequently seen in Europe, is seldom planted with us.

The balance of the morning was spent in the lilac display area. Since this collection was started by the late G. William Longenecker in 1935, the plants are now mature, many of them 15 or 20 feet tall. It was our great good fortune to be here on a day when nearly all of them were in full flower. In addition to most of the basic species, the collection includes 230 cultivars and must be considered one of the finest in the country. (Fig. 9).



Fig. 8. The rock garden at the Alfred L. Boerner Botanical Garden



Fig. 9. A portion of the lilac collection at the University of Wisconsin Arboretum

Following lunch we went with Dr. Zimmerman through the wooded Grady Tract to the H.C. Green Prairie. On the way we paused to admire a superb stand of *Lupinus perennis* which solidly occupied an extensive clearing in the oak woods. The Green Prairie, like the one at the Morton Arboretum, is man-made, but is much larger, comprising some 40 acres and containing over 300 species.

Many of the prairie plants we had seen before were here too, e.g., *Dodecatheon*, *Pedicularis*, *Lithospermum*, *Castilleja*, etc., but there were some novelties, the most spectacular of which was the white lady's-slipper, *Cypripedium candidum*. The violet here was *V. pedatifida*, rather than *V. pedata*, and the prairie-smoke, *Geum triflorum*, which we had seen at Hawthorn Hollow, was making a good show.

On our return from the prairie we passed through an oak savanna where the ground was illuminated with still another puccoon; this one was *Lithospermum croceum*, in which the flowers are a pure yellow, rather than orange-yellow as in the case of *L. canescens*.

We departed from this arboretum with full realization that we had seen only a fraction of its total offerings, but with great respect for the high quality of its plant material and the manner in which it is displayed.

For anyone interested in seeing plants from many different habitats growing in a climate-controlled facility a visit to Milwaukee's Mitchell Park is imperative and it was here that our group went on the afternoon of Sunday, June 1. This fabulous horticultural conservatory consists of three conoidal domes about 80 feet high and 140 feet in diameter (Fig. 10). It owes its existence to the Milwaukee County Park Commission which in 1955 had the vision to plan for its construction.

One enters the conservatory through a spacious foyer which contains a small reproduction of a southwestern desert, replete with cacti, yuccas, agaves, ocatillo, creosote bush, palo verde, etc.

The first dome, proceeding in a clockwise direction, is known as the Show House and is dedicated primarily to seasonal exhibits. At the time of our visit a colorful Spring Show was on display with tulips, azaleas, hydrangeas and a wealth of other vernal material. At other times of year

this area will feature autumn, Christmas, Easter, and so on.

Although these seasonal shows dominate the center of the area, there exists all around it a permanent collection of cool to warm-temperate or even sub-tropical plants.

Magnolia grandiflora (in full flower) luxuriated only a few feet distant from two species of *Podocarpus* from the southern hemisphere. *Fejoia Sellowiana*, a native of Brazil, was growing side by side with *Photinia serrulata* from China. *Melaleuca Leucadendron* from Australia was hobnobbing with *Arctotis* from South Africa. Such juxtapositions are achieved by a carefully controlled system of temperature and humidity factors.

From the Show House a passageway, flanked by informative exhibits, leads into the Arid House the first view of which, as one looks down into it, is little short of breathtaking. Here, amidst a setting of man-made "rocks" is a magnificent assemblage of cacti and other succulents from most of the desert or arid regions of the world (Fig. 11).

From our own Southwest were several species of *Yucca* and *Agave*. Their South African counterpart, *Aloe*, was well represented, as was also the huge genus *Euphorbia*. Of cacti (almost exclusively New World) there were many kinds of *Opuntia*, augmented by such genera as *Cephalocereus*, *Hylocereus*, *Oreocereus*, *Echinocactus*, and scores of others. Saguaro, the King of Cacti (*Carnegiea gigantea*) was here to our great delight, in flower, its waxy white blossoms fully justifying its lofty status as the State Flower of Arizona.

The Crassulaceae was adequately represented by a fine series of *Echeveria* from Mexico and Meso-America and a splendid display of *Aeonium*, from the Canary Islands, where my wife and I had seen many of them in January 1973.

In the very center of this house was a depressed area, representing an oasis, in which there were 70-foot tall specimens of date palm (*Phoenix dactylifera*) and the desert palm of Southern California (*Washingtonia*).

One of the most remarkable plants in this house was *Idria columnaris*, the boojum tree, a member of the Fouquieriaceae, which occurs only in the peninsula of Lower California.



Fig. 10. The climate—controlled domes in Mitchell Park, Milwaukee



Fig. 11. A section of the Arid House

The next passageway conducts one into the Tropical House where an equatorial atmosphere is maintained. Here, as might be expected, was a luxuriance of palms, cycads, ferns, orchids, aroids, bromeliads and a host of other plants which abound in tropical rain forests. The effect is heightened by a 25-foot high waterfall.

Since the tropics provide many of the plants important to mankind it is appropriate that the visitor should see here coffee, ginger, citrus, papaya and a score of others.

On the morning of Monday, June 3, we left Milwaukee and journeyed northward through the scenic Kettle Moraine State Forest. This area provides a dramatic demonstration of the work of the Wisconsin (latest) phase of Pleistocene glaciation. The ice as it moved relentlessly southward gouged out hollows or kettle-holes in the softer rock and deposited great masses of glacial debris or till in other locations. The result is a "roller-coaster" type of terrain which makes for slow driving but affords considerable scenic interest.

Our only stop that day was at "West of the Lake", the attractive garden of Mrs. John West of Manitowoc. It had been raining that morning and the minute we arrived Mrs. West produced a huge box filled with rubbers, boots and galoshes and admonished us to "fit ourselves out" before setting forth on our tour of the grounds.

It was in 1934 that Ruth West embarked upon the prodigious task of converting a six acre jungle of quackgrass and thistle into the showplace that today attracts thousands of visitors each year. We were too early for the roses, of which there are over 800, but the tulips, grape-hyacinth, primroses and other spring-blooming plants were making a fine show, set off by broad expanses of meticulously manicured lawn. (We didn't really need those boots!) Scattered about were several small vignettes, where the tasteful use of vari-colored stones, bits of statuary and exotic succulents in planters served to heighten the overall effect of the garden. (Fig. 12).

Mrs. West has been a discriminating collector of rare and unusual forms of *Fuchsia* and many of these were on view in her patio. Also on display were some elegant plants of *Aeonium* and her greenhouse contained a multitude of specialties seldom seen in private collections.

Departing from Manitowoc, our route continued northward into the Door County peninsula which is a narrow strip of land extending for some 70 miles with Lake Michigan to the east and Green Bay to the west. It is one of the most important cherry-growing regions in the country, and although cherries had long since passed the flowering stage south of us we now drove through mile after mile of orchards in full bloom.

North of Sturgeon Bay the character of the country changed dramatically and we found ourselves in a typical bit of boreal forest surrounded by canoe birch (*Betula papyrifera*), mountain ash (*Sorbus americana*), white cedar (*Thuja occidentalis*) and white spruce (*Picea glauca*). Our destination late that afternoon was the Bailey's Harbor Yacht Club, where we had comfortable accommodations in cottages within sight of the water.

Our chief reason for coming to Bailey's Harbor was to visit the nearby Ridges Sanctuary. The 800 acres of this corporately owned nature preserve consist largely of glacial sands deposited thousands of years ago and molded by the wind into a series of parallel ridges separated by swales. We were met at the entrance by Mr. Roy Lukes, Resident Naturalist, on the morning of June 4. After favoring us with a highly informative account of the history of this Sanctuary, Mr. Lukes led us for nearly three hours along its well-marked trails, stopping frequently to point out its botanical treasures.

As might be expected, the characteristic trees of the area are conifers, with white spruce (*Picea glauca*) dominant in most sections. Many of these fine old specimens were disfigured by enormous witches'-brooms which are caused by a parasitic dwarf mistletoe (*Arceuthobium pusillum*). There was also a minor element of swamp spruce (*P. mariana*). Balsam fir (*Abies balsamea*) and arbor-vitae or white cedar (*Thuja occidentalis*) were well represented and there were many patriarchal specimens of white pine (*Pinus Strobus*). In addition to the common juniper (*Juniperus communis* var. *depressa*), the ground was carpeted along the drier trails with creeping juniper (*J. horizontalis*). (Fig. 13).



Fig. 12. A view of Mrs. West's garden



Fig. 13. A portion of the trail through Ridges Sanctuary. *Juniperus horizontalis* in foreground.

It would require several pages merely to enumerate the scores of boreal herbaceous plants that have found a haven within this reserve. Of orchids alone there are twenty-five species, the most spectacular of which is the showy lady's-slipper (*Cypripedium reginae*), which has been adopted as the official emblem of the Sanctuary.

A very exciting species was the birds-eye primrose (*Primula mistassinica*), a far northern plant ranging from Labrador and Newfoundland to Alaska and here thriving near the extreme southern limit of its occurrence. The lake iris (*Iris lacustris*) was another boreal species which is here near its southernmost boundary. Still another denizen of the cool northern woods was the naked mitrewort (*Mitella nuda*). Roy Lukes picked a small inflorescence of this plant and members of the group who were equipped with hand-lenses (as all good tour members should be) were able to admire its delicately fringed petals. The Labrador tea (*Ledum groenlandicum*), although hardy as far south as the Poconos, is still something of a novelty to botanists of the Philadelphia area. Bearberry (*Arctostaphylos uva-ursi*), although even more familiar to our group, is another boreal evergreen shrub which in this case achieves its southern limit in the Pine Barrens of New Jersey. In several places there were solid stands of *Smilacina stellata*, the more northerly relative of our familiar *S. racemosa*, and the bastard toad-flax here was *Comandra Richardsiana* instead of *C. umbellata*.

We crossed and re-crossed several of the swales (Fig. 14) on bridges which Mr. Lukes himself had constructed and paused to admire the handsome flowers of the buck-beam (*Menyanthes trifoliata*). Here also was the pitcher-plant (*Sarracenia purpurea*). Both of these species are primarily northern in their distribution.

Add to all these the presence of such interesting plants as *Coptis groenlandica*, *Clintonia borealis*, *Linnaea borealis*, *Cornus canadensis*, *Gaultheria* (*Chiogenes*) *hispidula* and *Andromeda glaucophylla* and it will be readily apparent that the Ridges Sanctuary constitutes a floral showcase of unusual richness.

Nothing was planned for that afternoon, but many members of the tour wandered through the surrounding woods and along the shores of the harbor where there was much to observe. A common shrub hereabout was the buffaloberry (*Shepherdia argentea*) and on all sides was the red-fruited elder (*Sambucus pubens*) in full flower with its upright, paniculate inflorescences. Among deciduous trees were mountain ash (*Sorbus americana*), canoe birch (*Betula papyrifera*) and balsam poplar (*Populus balsamifera*).

The larch or tamarack (*Larix laricina*) was of occasional occurrence, and the presence in moist hollows of the brilliant yellow flowers of *Caltha palustris* served to remind some of us of our pleasure in seeing this same species in Lapland on our Scandinavian tour.

That evening Roy Lukes came to the Yacht Club and entertained our group with a fine slide presentation entitled "The Ridges from Season to Season."

On the following morning we headed north to Sister Bay, where we stopped to visit the nursery of Mr. William H. Beckstrom at the Red Barn Plant Farm. Mr. Beckstrom is a very skillful grower of alpine plants and although he complained that, because of lack of help, his nursery was completely overgrown by weeds, we spent a very pleasant hour examining his many rarities. Had we not been returning home by plane it is likely that we would have invested heavily in his offerings. Even as it was, several members of the party were observed departing with bulging plastic bags under their arms.

Wishing to see the northernmost tip of this fantastic peninsula, we drove up to Gills Rock, where we paused briefly to look across to Washington Island, but a short distance away. It was difficult to realize on this pleasant day in early June that masses of ice many feet high often isolate this island from the mainland during winter months.

Returning along the west shore to Ellison Bay, where we stopped for lunch, we then proceeded to The Clearing where the resident manager, Mr. Claire W. Johnson, was awaiting us.



Fig. 14. Swale in Ridges Sanctuary



Fig. 15. View across Ellison Bay from The Clearing

In 1935 Jens Jensen, distinguished landscape architect, philosopher and dreamer, established on some 120 acres of woodland a site to serve as a retreat for study and contemplation. Here from early May to mid-October come persons interested in art, music, language, philosophy, religion or creative thinking in an atmosphere of relaxation and harmony with natural surroundings. (Fig. 15).

Today, as Mr. Johnson explained, The Clearing is sponsored by the Wisconsin Farm Bureau Federation which makes it possible to perpetuate the "simple but significant philosophy" of its founder, who died in 1951.

Before departing on our walking tour of The Clearing we were joined by naturalists Mr. Robert Prager and his wife. We followed first a woodland trail where hemlock and beech were dominant and where we soon noted *Lathyrus ochroleuca*, a delicate creamy-colored relative of the sweet-pea which most of us had never seen before. All around us were the young palmately lobed leaves of a raspberry which I took to be our eastern purpled-flowered *Rubus odoratus*. I was informed, however, by Mr. Prager that this was *R. parviflorus*. When I protested that I had always considered this a species which was at its eastern limit in the Great Lakes area, he said, "Well, where do you think you are now?" I was forced to admit that we were in the Great Lakes area. This is but another example

of two populations which were probably genetically homogeneous before the advent of the Pleistocene glaciation a million or so years ago.

One of the conspicuous shrubs along the trail was the predominantly northern round-leaved dogwood, *Cornus rugosa*. We were impressed, however, by the fact that the leaves here were by no means as orbicular as those with which most of us were acquainted.

As we proceeded along the woodland trail many other interesting plants such as hepatica, baneberry, columbine and yellow violet came into view but all of these paled into insignificance when we saw our first clump of yellow lady's-slipper, *Cypripedium Calceolus*. (Fig. 16). Immediately every camera came into action, but our guides implored us to "hold our fire" for what was in store for us. And how right they were! For beyond the administration center and in a natural amphitheater overlooking an arm of Green Bay were not scores, not hundreds, but thousands of lady's-slippers. We doubted whether anywhere else could such a display be seen. If there is any single memory of this tour to be everlastingly retained this must certainly be the one.

The following morning, Thursday, June 5, witnessed our departure from Bailey's Harbor by way of bus to Green Bay and thence by plane via Chicago to Philadelphia and home.



Fig. 16. *Cypripedium Calceolus* at The Clearing

A GLIMPSE INTO THE PERSONAL LIFE OF NEHEMIAH GREW

Louis S. Marks

Most books on the history of botany give us some insight into the family background of Nehemiah Grew, the eminent plant anatomist. But, after describing his scientific discoveries, they do little to give us a picture of Nehemiah Grew the man. The Chancery Proceedings in the Public Record Office in London for 1735 throw an interesting light on the subsequent history of the Grew family. The eminent Doctor of Physick died in 1712, intes-

tate, leaving a son Henry, age two, two other sons, a daughter, and his widow. Apparently there was a considerable block of stock in the Bank of England, and this suit by Nehemiah's son Henry, a linen draper, against the Governors of the Bank of England and his mother, throws an interesting light on the personal relationships in the family of this early scientist.

NOTES FROM THE ARBORETUM

THE STAFF

It is gratifying to report that Dr. Gordon has been elected to honorary membership in the Pennsylvania Academy of Science in recognition of his many years of meritorious service to that organization. On April 29 Dr. Gordon conducted a seminar on "Getting Acquainted with our Common Grasses" for the staff of the Ridley Creek State Park and on May 5 he participated in a study of freshwater fauna at the Robert B. Gordon Natural Area for Environmental Studies. He is continuing his revision of the eight-color vegetational wallmap for the Ohio Biological Survey.

Dr. Penny has been invited by Professor Rhodes Fairbridge of Columbia University to prepare an article on Tertiary Palynology for the new Encyclopedia of Paleontology.

On February 20 Dr. Fogg gave an illustrated lecture on "Morocco and the Canary Islands" to the Associates of the Morris Arboretum. On May 9 he and Mrs. Farley represented the Arboretum at the Middle States Regional Conference of the American Association of Botanical Gardens and Arboreta which was held at the A.G. Scott Arboretum in Swarthmore. The morning session featured a debate between Dr. Fogg and Dr. Richard A. Howard, Director of the Arnold Arboretum, on "The Importance of an Herbarium to a Botanical Garden or Arboretum". Dr. Fogg was one of the principal speakers on the occasion of the dedication of the Marion Rivinus Rose Garden at the Morris Arboretum on June 27.



Shrub garden before planting



Shrub garden after planting

A SHRUB GARDEN

The small arboretum of the Barnes Foundation serves a very important function as an outdoor classroom for courses in botany, horticulture and landscape architecture. One of the features, long lacking, has been a collection of flowering shrubs where, in a circumscribed space, the students as well as visitors might examine a representative display of this valuable class of plant material.

It was to remedy this defect that in the fall of 1973 we created a formal arrangement of beds along Lapsley Lane between the nursery and the fence that supports the vine collection described in a recent issue of this *Newsletter* (Number 3, September 1969).

This garden is in the form of a quadrangle, three times as long as it is broad, and it encloses three beds which parallel its long axis. The beds which are four feet wide are separated by grassy strips of the same width. The total planting area is 488 lineal feet.

Planting was begun in October, 1973, and continued in the spring of the present year. At present the garden contains 115 different species and varieties of shrubs and there is room for 25 more, bringing the grand total to 140—a small collection, to be sure, but we hope an attractive as well as a useful one.

Although such genera as *Spiraea*, *Rhododendron*, *Lonicera* and *Viburnum* have their own centers of concentration elsewhere on the grounds, a few of them have been included here in the interests of a fuller representation.

Among the more unusual shrubs are *Adina rubella*, *Abelia chinensis*, *Holodiscus discolor* and *Leptodermis oblonga*. The collection also includes some of the newer cultivars of *Buddleia*, *Philadelphus* and *Weigela*.

LIBRARY ACCESSIONS

The following are among the books added to the Library during recent months:

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- The Grafters' Handbook*. 2nd ed. R. Garner 2nd ed. Oxford Univ. Press, N.Y. 1967.
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- Greenhouse Gardening as a Hobby*. James Underwood Crockett. Doubleday & Co. N.Y. 1961.
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GLOSSARY OF TERMS APPLIED TO THE SURFACE OF A LEAF

When the surface of a leaf (either upper or lower) is totally devoid of hairs it is said to be *glabrous*.

When the leaf surface is provided with hairs (which are modifications of the epidermis) it is said to be *pubescent*. Following is a list of the terms applied to the various kinds of pubescence, as well as several other modifications of the leaf surface.

In some cases these terms may also be applied to a stem or petiole.

Aculeate. Beset with bristles: *Ruscus aculeatus*.

Arachnoid. Cobwebby with soft, slender entangled hairs: *Sempervivum arachnoideum*.

Canescent. Gray pubescent and hoary: *Helianthemum canescens*, *Rhododendron canescens*.

Ciliate. Fringed with hairs; bearing hairs on the margin; *Lonicera ciliata (canadensis)*.

Glandular. Bearing glands or of the nature of glands: *Crataegus glandulosa (macrantha)*.

Glaucous. Covered with a whitish (often waxy) bloom: *Lonicera glauca (dioica)*.

Hirsute. With rough or coarse hairs: *Vaccinium hirsutum*, *Penstemon hirsutus*.

Hispid. With stiff, rough or bristly hairs: *Aralia hispida*.

Lanate. Woolly with long intertwined curly hairs: *Stachys lanatus*.

Lanuginose. Woolly or downy, the hairs shorter than in lanate: *Thymus lanuginosus*.

Lepidote. With small scurfy scales: *Rhododendron lepidotum (carolinianum)*.

Pilose. Shaggy with soft hairs: *Phlox pilosa*.

Pruinose. With a hoary or waxy bloom: *Crataegus pruinosa*, *Lemaireocereus pruinosis*.

Puberulent. Minutely pubescent: *Lobelia puberula*, *Solidago puberula*.

Pulverulent. Appearing as if covered with minute grains: *Zenobia pulverulenta*.

Scabrous. Rough; feeling gritty to the touch: *Deutzia scabra*.

Sericeous. Silky: *Salix sericea*.

Setose. Covered with bristles: *Carex setacea*, *Echeveria setosa*, *Cyperus setigera*.

Squamate. Covered with small scales, more so than lepidote: *Juniperus squamata*.

Stellate. Covered with star-shaped hairs: *Rosa stellata*, *Quercus stellata*.

N.B. This term may also be applied to a plant with star-shaped flowers: *Magnolia stellata*.

Tomentose. Densely woolly with individual hairs undiscernible: *Prunus tomentosa*, *Spiraea tomentosa*.

Velutinous. Velvety with straight, firm hairs; *Syringa velutina*, *Quercus velutina*.

Verrucose. With wart-like protuberances: *Berberis verruculosa*.

Villous. Shaggy; with long, soft not matted hairs: *Syringa villosa*.

J.M.F. Jr.

Rhododendron adenophorum

Several years ago Mrs. Barnes received from the United States National Arboretum a *Rhododendron* under the designation "Glenn Dale 209."

This is now a handsome plant 1.5 m. tall and about as wide. The elliptic, leathery leaves are dark green above and densely rufous-pubescent beneath. They are from 10 to 12 cm. long and 1.5 to 2.0 cm. wide; the petioles are about 1.5 cm. in length.

The flower buds are a rich rosy-red, but the full opened corollas are a clear pink, sparingly speckled in the throat.

In the spring of 1971, feeling that this plant had nothing in common with other Glenn Dales, I sent herbarium specimens of flowering and fruiting material to Dr. Henry T. Skinner, Director of the National Arboretum, a recognized authority on the genus *Rhododendron*, asking him whether "209" had ever been replaced by a name.

Dr. Skinner turned this problem over to Dr. T. R. Dud-

ley, a member of his staff, who on June 15, 1971, wrote to me stating that "209" was not a Glenn Dale number, that there was no such plant in their collection and that, to the best of his knowledge, our specimen was *R. adenophorum* Balf. & Sm., a native of Kiangsi Province in Western China.

Since this species does not seem to be generally cultivated in the Philadelphia area, I invited Mr. Ross Davis, a competent horticulturist, to propagate our plant. Mr. Davis was successful in rooting cuttings from our specimen and later turned several of them over to us.

This note is merely to place on record that one of these young plants has been placed in the newly established Shrub Garden (see page 9) and another has been added to the arboretum's main collection of this illustrious genus.

J.M.F., Jr.